

Radon

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[What is radon?](#)

Radon is a naturally occurring radioactive gas produced by the breakdown of uranium in rocks and soils. Radon gas is tasteless, colorless and odorless. The only way to know if it is in your home is to test for it.

[Is radon a problem in Tennessee?](#)

Yes. The Tennessee Department of Environment and Conservation (TDEC) considers radon to be a very serious problem in our state. No matter where you live in Tennessee, there is the potential for radon to enter your home.

[What are the health effects of radon?](#)

Radon gas has been identified as the second leading cause of lung cancer, second only to cigarette smoking. Radon is responsible for about 21,000 lung cancer deaths every year. About 2,900 of these deaths occur among people who have never smoked.

As radon gas breaks down, it emits high-energy alpha particles. These particles are in the air we breathe, and once inhaled, they can be deposited in our lungs. The energy associated with these particles can alter cell DNA, thus increasing the risk of lung cancer. Persons who smoke and live in a home with elevated radon levels are at a very high risk to develop lung cancer.

Fortunately, radon does not generally present a health risk outdoors because it is diluted in the open air. Radon can, however, build up to dangerous levels inside a house, any other buildings, or caves.

[How does radon enter my home?](#)

Radon is a radioactive gas that comes from the soil. Most homes and buildings are constructed atop the soil on a property. Air pressure inside your home is usually lower than pressure in the soil beneath and around your home's foundation. Because of this difference in air pressure, your house acts like a vacuum, drawing radon in through foundation cracks and other openings. Radon may also be present in well water and can be released into the air in your home when water is used for showering and other household uses. In most cases, radon entering the home through water is a small risk compared with radon entering your home from the soil.

How much radon is dangerous to my health?

Radon is measured in picocuries per liter of air or pCi/L. The average concentration of radon in outdoor air is 0.4 pCi/L. The average radon concentration in the indoor air of America's homes is about 1.3 pCi/L. The U.S. Environmental Protection Agency (EPA) has established 4 pCi/L as an action level in which one should initiate measures to reduce the amount of radon in a home. However, there is no safe level of radon. The EPA recommends that if the radon level detected in a home is between 2 and 4 pCi/L, steps should be taken to reduce it to below 2 pCi/L.

How can I test for radon in my home?

Testing for radon in your home is very easy to do. Do-It-Yourself test kits are available for purchase at most home improvement stores, hardware stores, and from Internet vendors. In some cases, they may be available from state or local government agencies. Do-It-Yourself test kits also contain easy-to-follow directions on how to conduct the test and submit the test kit for analysis. It is VERY IMPORTANT to follow the directions in the test kit to ensure that you obtain accurate results from the test.

There are also commercial companies that can be hired to conduct radon testing. These companies are not regulated by the state. However, EPA set up a national radon proficiency program for radon testers. Be sure to check the type of certification the tester holds to help ensure that person is appropriately credentialed to perform the job. It is advisable to check these companies with your local Better Business Bureau to better ensure they are reputable.

I tested my home and the radon level was over 4pCi/L, what can I do?

If the results of your radon test exceeded 4 pCi/L, TDEC and EPA recommend that a follow-up test be conducted. If the follow-up test results (or the average of the two tests) also exceed 4 pCi/L, it is recommended that your home should be fixed to reduce the radon levels.

How do I get my home fixed and who can do that type of work?

There are several ways in which radon in a home can be mitigated (i.e. reduced or removed). Generally, the manner in which your home is constructed will dictate the type of mitigation method that will be appropriate for your home.

In some cases, a homeowner can research the type of radon mitigation systems that have been devised, purchase the necessary materials, and install an appropriate mitigation system themselves. However, in many cases, professional help will be needed to have a proper radon mitigation system installed.

There are commercial companies that can be hired to install radon mitigation systems. There are many types of these systems. Some examples are discussed in EPA's [Consumer Guide to Radon Reduction](http://www.epa.gov/radon/pubs/consguid.html) {www.epa.gov/radon/pubs/consguid.html}. Commercial companies that install radon mitigation systems are not regulated by the state. However, EPA set up a national radon proficiency program for radon mitigators. Be sure to check the type of certification the mitigator holds to help ensure that company or person is appropriately credentialed to perform the job. It would also be advisable to check companies with your local Better Business Bureau to better

ensure they are reputable. Due to the potential expense involved in the installation of a mitigation system, it is also recommended that the homeowner obtain bids from several companies.

Once a home radon mitigation system is installed and working, a follow-up radon test should then be conducted to ensure that the system is properly working.

Additional Resources

Since concerns about radon have been in the public eye for over 20 years, there is a wealth of information available from many resources. For persons seeking more information concerning radon, visit the Web links below.

U.S. Environmental Protection Agency – Indoor Air
<http://www.epa.gov/radon>

Tennessee Department of Environment and Conservation
Division of Air Pollution Control – Radon Program
<http://www.tennessee.gov/environment/apc/radon>

U.S. Department of Health and Human Services
Agency for Toxic Substances and Disease Registry
Toxicological Profile of Radon
<http://www.atsdr.cdc.gov/toxprofiles/tp145.html>